Student Medicine

VOLUME I • APRIL 1953 • NUMBER 2

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Student Medicine

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Published biannually in October and April by the Department of Clinical and Preventive Medicine, Cornell University, Ithaca, New York.

Subscription price, $1.00 a year.

Address all communications regarding this journal and its contents:—To the Editor, *Student Medicine,* Cornell University, Ithaca, New York.

PRINTED IN THE UNITED STATES OF AMERICA
BY CAYUGA PRESS, INC., ITHACA, NEW YORK

Editorial Comment

UNDERSTANDING THE ADOLESCENT

GROWING up is rather an ordeal, the greater part of which takes place in those few years between childhood and adulthood which we speak of as adolescence. If there are no physical scars resulting from diseases and accidents of youth, there may be less apparent ones resulting from emotional trauma. Perhaps some of these scars could be prevented if our understanding of adolescence were deep enough. Since many students arrive on the campus while they are still in the late stages of adolescence and the remainder are in the immediate post-adolescent period, it seems especially desirable that physicans who treat college students should have this understanding.

May we call special attention to the paper "Growth in Adolescence," by Dr. J. Roswell Gallagher. Written by a physician who has devoted most of his medical experience to the medical and developmental problems of youth, the article points out that there is no average pattern of growth and development during adolescence, but that each individual matures in a way and at a time that is probably best suited to his particular youth. Dr. Gallagher further emphasizes the point that these deviations from the average (or what we tend to regard as the normal) may produce great anxiety in the individual when he notes that he differs in some way from his companions. This paper, together with the one on emotional development, which appeared in the first issue of Student Medicine, provides much of the background necessary for playing our part in carrying young folks on to maturity.

SURVEY OF COLLEGE HEALTH DEPARTMENTS

It has been known for a long time that a wide variety of arrangements for medical care exists among the 2000 odd institutions of higher learning in this country. Experienced workers in student medicine have frequently asked what the minimum safeguards for campus health should be. From many quarters of the American College Health Association have come expression of the need for a definition of minimum standards for facilities, personnel qualification, and quality of service for student medical departments. The lack of specific knowledge of the various arrangements for campus medical care undoubtedly has impeded development of a standardization program.

It is most appropriate that opportunity has now come to the American College Health Association to learn the range of medical care plans among American institutions of higher learning. We support wholeheartedly the current survey being conducted jointly by the Association and the Continental Casualty Company.

It is our hope that all physicians in charge of college health departments will co-operate in the student medical reconnaissance now being undertaken. The method of conducting the survey is unique in that it involves an individual interview with the person responsible for medical care at each institution. This technique should result in more reliable data and a higher percentage of returns than studies conducted by mail. The questionnaire is adequately designed to inventory all college and university health departments, large and small, with and without full-time medical personnel, with and without a medical director. If from this study a basis for minimum standards is eventually forthcoming, student medicine will have jumped a barrier that has held back its progress for many years.

THE CARE OF INJURED ATHLETES

In his article, in this issue, Dr. Rachun describes many of the injuries frequently seen on the athletic field and gives valuable aids for the recognition of their specific nature. One of these aids is worthy of further emphasis. Direct observation of the athlete at the time of injury often provides the alert physician with the key to the diagnosis. Knowledge thus gained of the mechanism of injury is helpful not

only in recognizing which structures are injured but also in assessing the severity of injury. The widespread use of motion pictures for the study of football plays has indirectly provided a further refinement for observing the occurrence of injury. The projector can be slowed or even stopped so that careful observations can be made which are not possible when the players are moving at full speed on the field.

If carefully observed the athletic field can serve as a form of laboratory where, in the course of time, the physician will see some injuries occur repeatedly. He may become familiar with the forces that tend to produce certain injuries and thus be enabled to teach players how these injuries can be avoided. The physician also may learn to devise measures such as special pads or adhesive strappings which will provide protection to the players. Much work remains to be done in protecting athletes from injury. Some of this can be done in the scientific laboratory. For example, the recent development of a helmet that is superior to any other football helmet was the by-product of research carried on at the Aeronautical Research Laboratory at Buffalo, New York. The initial purpose of the investigation was to find ways for providing greater protection to flyers at the times of crash landings.

The manner in which the injured player is handled immediately after injury occurs is deserving of thought. In some football stadiums it seems to be the policy that there must never appear to be an injury severe enough to require that a player be carried off the field. The player hobbles or is half dragged off the field and thus subjected to unnecessary pain and possible aggravation of the injury. This is done for fear of adverse criticism if it should appear that the sport may cause serious injuries. We believe that the welfare of the athlete should be the first consideration. It would be much better to follow the example of one large university where it is the custom to print in the program the information that all injured players will be carried from the field on stretchers and that this does not necessarily indicate serious injury.

One phase of the problem, which taxes the skill and judgment of the physician in properly handling athletic injuries, concerns the decision whether the injured player should be allowed to continue the game and, if not, when he may be allowed to resume play. The forces that converge on the physician may be overwhelming when

injury threatens the loss of a valuable player. The injured athlete insists he is all right and begs to be allowed to continue to play. The other members of the team and the coach sometimes consciously, but more often unconsciously and indirectly, urge his early return to the game. Even greater pressure frequently comes from those less closely associated with the player, namely from ardent alumni and other enthusiastic supporters of the school team and especially from the "Monday morning quarterbacks." Even the doctor's own loyalty to the team and his desire to fulfill his duties urge that the team be restored to full strength as soon as possible.

Minor injury and fatigue must also be carefully considered, for these may affect the co-ordination and speed of the athlete and make him more liable to further injury. Here the "two platoon" system of recent years has worked to the advantage of the football team physician. The frequent periods of rest reduce the fatigue factor and give better opportunity for observation of the player, thereby making it easier to evaluate an injury. With the return to limited substitution, where a player may not return to the game during the quarter in which he is removed, the physician will have to evaluate the injury hastily while on the field, for to remove the player for more careful observation may weaken the team during the remainder of that period.

The physician must often be guided more by the art than by the science of medicine in making these decisions. This art is usually acquired only by long experience in dealing with athletes and their injuries. If physicians who have had this training could pool their information, it would provide an invaluable tool to aid newcomers in this field. It is to be hoped that more articles like those by Dr. Rachun and by Dr. Britton will be forthcoming and help in developing further this phase of student health work.

Growth During Adolescence

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IN RECENT years, because some of the more serious disorders of infancy and early childhood such as feeding problems, diarrheal diseases, and bacterial infections have become better understood, physicians have begun to give their attention to the hitherto relatively neglected natural phenomena of adolescence. These physicians, who are now both studying and caring for young people of this age group, find few *diseases* limited to adolescence, but they quickly discover that there are some matters concerning *these young people themselves* which should be kept in mind by the physician who advises and treats them. These matters (their concern with their own growth and development, their habit of strenuous living, their concern with their schooling, and their emotional development) have been the subject of many publications, but a thorough understanding of one of them, the characteristics of the growth process in adolescence and the related fact of the adolescent's deep concern with his own growth, is so essential to a correct evaluation and proper management of a young boy or girl that reiteration is desirable.

Small children and adults have little emotional concern with their size. An eight-year-old child does not care how tall or mature he is and a thirty-year-old adult does not become emotionally upset by the fact that his height is greater or less than his neighbor's. The adolescent, however, feels differently. Height, size, rate of growth, and state of maturity all mean a great deal during these years. The adolescent who is not maturing as rapidly as his or her companions, the

boy who is shorter or the girl who is taller or more obese than usual, not only dislikes being different, but may become emotionally disturbed fearing that these conditions will always be present. Some of this overconcern with their own growth and size is due to adolescent conservatism, to their desire to be like their associates; some of it arises from the fact that size is a factor in their athletic and social success; some of it develops because for years their parents, their teachers, and their physicians have expressed great interest in their growth and have compared them to charts and standards which children accept unquestioningly and fail to understand. Few understand that wide variation from the average is compatible with normality. Lastly, but very important as a source of anxiety, is their masturbation in which they guiltily persist although fearing it may be retarding their growth.

Since adolescents feel as they do about growth, it is important to keep their attitudes in mind when dealing with them and to take time to correct their erroneous ideas whenever these are producing anxiety. They will need more than casual reassurance if their doubts regarding their normality are to be removed. Patient, clear explanation of the facts of growth and of individual variation may be no more effective at a single office visit than is an experienced algebra teacher's initial classroom effort. All this will probably need re-explanation, discussion, and reiteration, for not only is the physician faced with the usual factors, which resist the absorption of new ideas, but he also has the handicaps of attempting to teach an anxious person and of trying to supplant long-standing misconceptions.

First, in dealing with adolescents, we need to remember that growth means more to these young people than it does to members of other age groups. Next, we need to remember to avoid reinforcing their already unwarranted beliefs regarding "standards" by avoiding careless or obsequious reference to them ourselves. Then we need patiently to explain the difference between deviating from the average and being abnormal; and to make clear the wide variation in time, rate, and extent of growth which exists among perfectly normal individuals. And lastly, but most important of all, as part of the patient's learning to understand and to accept himself, we need somehow to foster in these young people the idea of the uniqueness and the importance of the individual. None of this can be easily or quickly done, and to promote the idea of the importance of the in-

dividual in people whose world, though protesting a belief in freedom, bombards them with talk about, and the rewards of, average size, behavior, and attitudes, and unwittingly sets conformity on a pedestal, is as difficult as it is desirable.

Those studies of somatic growth which have been involved with the observation of the same adolescents over a period of several years have permitted generalizations of great value to the clinician. Data based upon the height, weight, or state of maturity of members of a given group at a single point in time have some value, but information which is of much more valid application to an individual adolescent's growth problem is obtained from the year-after-year study of the growth patterns of the same boys and girls. Out of such investigations one learns to have great respect for individual differences in rate, time, and extent of growing. Even though all members of such a group are free from chronic illness or nutritional disturbances, they show wide variation in their mode of growth. If adolescents have anything in common, it would appear to be that each has his own individual growth pattern—that each differs from the other.

No concept is of more importance than this one of individuality in growth. There is a usual order in which the various characteristics of adolescence appear, but wide variation from this pattern is compatible with normal growth. At age fourteen we find normal, healthy boys and girls not only differing widely in skeletal and sexual development, in height and weight, but also in the time, rate, duration, and extent of their growth spurts. At age fourteen the *average* height and weight of a group of boys may be 66 inches and 127 pounds, but not only will many normal healthy boys vary all the way from 58 to 73 inches and from 75 to 190 pounds, but also there is good reason to believe that among boys of the same age the largest will grow least and the smallest will grow the most during the next year. We have no evidence that within wide ranges any one size or any one way of growing is superior to another.

Since height and weight are the two measurements commonly used and because skeletal age cannot be ignored in adolescence, the relationship of these three to the concept of individual variation deserves the most detailed discussion. But other items, such as individual metabolic patterns, leg length, shoulder width, or time of appearance of the various secondary sexual characteristics could be used

to illustrate the same point. It is not just in these, but in all aspects of growth, that wide variation in adolescent growth and development exists and to which *normal range data* brings much more valid information than do *averages*.

SKELETAL AGE

When it is said that chronological age means little when applied to the adolescent years, reference is being made to the fact that at age fourteen, for instance, normal healthy boys may vary all the way from one extreme of sexual maturity to the other. At chronological age fourteen, a group of boys may range all the way from skeletal age twelve to skeletal age seventeen; and no more than 40 per cent of the group may have similar chronological and skeletal ages.

It is important not only to realize that this variation in skeletal development exists, but also to know what subsequently happens to those who fall at the extremes. Here the advantages to be gained by serial observations of the same individual are emphasized. We rightly ask not what happens on the average, but what kind of growth pattern does each of these boys subsequently follow. Subsequent evaluations of the skeletal ages and the maturity ratings of a group of boys whose skeletal ages were more than twelve months below their chronological ages at the time of their initial examinations and of others whose skeletal ages were twenty-four or more months advanced indicate that although these boys varied considerably in the way in which they approached skeletal maturity, they were all maturing, and insofar as our present knowledge permits us to judge, probably were progressing in the manner most appropriate to each of them. Those boys whose development was retarded continued to lag behind their chronological age standards, and they varied in the extent of their subsequent years' development, but all increased in skeletal age and in maturity rating. In one group only one boy gained more than twelve months in skeletal age rating during the first year, but several gained more than twelve months in the second year and all but one gained twenty-four or more months in skeletal age during the two year period of observation. One fifteen-year-old boy whose skeletal age was twenty-two months behind his chronological age at the time of his initial examination, gained thirty-

eight months in skeletal age in the next twenty-four months and showed a striking change in his maturity rating.

A group of fourteen-year-old boys whose skeletal ages exceeded their chronological ages by more than two years, though they continued to be considerably advanced in skeletal age, showed a trend toward a diminution in the difference between their skeletal and chronological ages. At the end of the two year period, none had a two year difference between his chronological and skeletal age.

HEIGHT

A prediction of future height at any given age needs to take into consideration family growth patterns. Adolescents vary not only in the extent but also in the time at which they grow. Members of some families do most of their growing early in adolescence; others appear to stand still in their early teens, then take a considerable spurt and continue to grow long after others of their same chronological age have ceased to increase in height. The average height at a given chronological age is of very limited value in the prediction of what an individual's growth will be: averages can only indicate group trends. Ranges between which the heights of normal young people fall are much more significant; to say that at age fifteen height varies from 60 to 73 inches in normal healthy boys is more informative than to say that the average is 67 inches. That is not to say that all efforts to predict future growth are futile. If one understands the limitation of standard tables, individual guesses can be made: these will be less subject to error if skeletal age standards rather than chronological age standards are used. Chronological age-height tables constructed from a group may show no increase in average height after age fourteen, whereas skeletal age-height tables constructed from the same group show an even yearly increment up to age seventeen. The chronological age-height averages of one group studied were found to be greater than the skeletal age-height averages at each of the adolescent periods except age seventeen when they became identical. This may be because the group had a high percentage of individuals whose skeletal age exceeded their chronological age.

A height increment table based upon chronological age will indi-

cate what we have become accustomed to accept as an unqualified fact: between the ages of thirteen and fifteen a greater height increment occurs in shorter than in taller boys. However, the fallacy of that generalization is apparent when one deals with an individual, and becomes particularly striking when that individual's skeletal age differs considerably from his chronological age. A real and practical difference exists between height increment data based on chronological age and data based on skeletal age. From skeletal age-height increment tables we find that there is little difference in height increment at the same skeletal age whether the boy is short or tall. Two boys whose skeletal ages are fourteen but whose present heights are 70 inches and 62 inches respectively may *both* expect a height increase of about two and a half inches in the next year. Similarly at skeletal age seventeen, whether a boy is now short or tall, his expected height increment in the next twelve months is about the same.

What is likely to happen to a given boy whose present chronological age, skeletal age, and height we know? Greater growth occurs in the boys whose chronological and/or skeletal age is lowest, but there is little difference in the extent of subsequent growth in boys of the same skeletal age whether they are at present short or tall. At the same skeletal age there is no significant difference in height increment between the shorter and the taller boys. There is, as one would expect, a gradual decrease in height increment as both chronological and skeletal age increases. This decrease seems to be independent of previous height if skeletal age is considered.

Chronological age-height tables, however, give a different picture. From them it would appear that future height increment at a given chronological age is dependent upon present height, that the shortest grow most, the tallest grow least. That errors in prediction are less likely, when skeletal age tables are used rather than chronological age data, is suggested by a study of the actual twelve-month height increments of seven fifteen-year-old boys whose skeletal ages differed considerably from their chronological ages and whose heights ranged from 64 to 65 inches. These fifteen-year-old boys' skeletal ages ranged from thirteen to seventeen years. In six instances the predictions based on skeletal age data were far superior to those based on chronological age data; in only one instance did the skeletal age data yield a much less accurate prediction than did the chronological data.

When one studies the subsequent growth of those who represented the 10 per cent at each extreme of height for each skeletal age in a group of boys, one finds that less than 10 per cent of the short boys attained average height and that all of the tall boys remained above the average. However, the average yearly height increment of over 60 per cent of the short boys was greater than that for the skeletal age group as a whole, while 50 per cent of the tall boys subsequently grew less yearly than the yearly average increment.

This concept of basing predictions upon developmental status rather than upon chronological age is of the utmost importance in the adolescent years. In these years of rapid and irregular growth, chronological age is frequently a misleading yardstick. Boys of fifteen or sixteen, worried about their stature and whose skeletal age is a year or two less than their chronological age, can, providing no contradictory evidence exists, confidently be assured that further growth is likely.

WEIGHT

During adolescence weight changes are considerable. There may be very striking increases in fat during early adolescence (which is too often confused with hypothyroidism) but, usually, increases in weight follow after, rather than precede, increases in height. A greater part of the weight increase in mid-adolescence is due to the increase in skeletal growth; in late adolescence the increase is due chiefly to increase in the leg, thigh, and shoulder girdle musculature and partly to the deposition of fat. Skeletal age-weight tables seem to vary little from and to offer little if any advantage over the chronological age-weight tables, but the extraordinary range one finds in weights and in weight increments emphasizes the value of distribution data and its superiority to tables, which give only averages.

What can one expect to happen to those boys who fall at the extremes of weight but who are in good health emotionally and physically and require no treatment? Boys who represent the 10 per cent at the lower extreme of weight for each skeletal age group at their initial examination, tend to remain below average weight throughout the next few years. Only about one-third of these boys will show weight increments greater than average. Similarly, boys who are in the 10 per cent group of the heaviest boys tend to remain above aver-

age in weight. Fewer than half of these boys can be expected to show less weight increment than is average for their age.

Factors such as dietary habits, emotional disorders, illness, and constitutional differences are at times a satisfactory explanation of the failure of some lean individuals to gain and of some other overweight adolescents to lose weight, but in some instances no apparent cause is found. Regardless of their determined efforts to gain or lose, some adolescents meet with little success in modifying their weight. Since his group's early studies may point the way toward an explanation of this puzzling problem and because they show that individuals vary in their metabolic patterns even as they do in other respects, Williams' work should be kept in mind. His data suggest that those obese individuals have characteristic metabolic differences. Further studies may run counter to this preliminary investigation but the approach seems promising, and the general concept that every individual has a characteristic biochemical pattern which is distinctive for him alone and similar only to that of those others who resemble him most closely has fascinating implications. It has everything to do with individual differences and nothing in common with studies that emphasize the average measurements of a variety of phenomenon in a mythical average man.

Progress in growth is more important than is an adolescent's present status. That he is gaining height or is moving toward adulthood in any way is the significant fact. Changes in skeletal development, in total height, in leg length, in trunk height, in hip and shoulder width, all occur in adolescence and usually in that order but at varying ages and with variation in pattern. Adolescence is not static—it is a process; the Romans packed *motion* into their verbs ending in "scens". That *change* is occurring in some one of these aspects of growth suggests that other and more usual changes in other respects will shortly appear. It is when *no change* is taking place and when the skeletal age is far advanced beyond the time for such changes that one should suspect a pathological condition. In boys one usually sees first a gradual increase in size of genitalia; then the appearance and development of pubic, then facial, then axillary hair. In girls one first notices a budding of the breasts, next an appearance of pubic hair, and then the menarche. The timing, their sequence, and the extent of

these vary among different individuals. They are important straws in the wind, however, and when for instance, a boy whose present height is at the lower limits of normal shows evidence of growth in his leg length, or, when seeming immature, pubic hair begins to develop, these are reassuring signs and indicate that the growth phenomena of adolescence are beginning to emerge.

These comments and these data illustrate the fact that normal healthy individuals show wide differences in various growth phenomena, that the vast majority of them reach a satisfactory and what may well be for each of them an ideal adult state though their way of reaching that goal varies considerably. Though these are facts, and though the individual would do well, except in rare instances, to accept himself as he is and not wish to imitate some standard pattern, his physician should recognize the psychological potentialities of wide differences from the usual and anticipate those anxieties so likely to develop in adolescents who find themselves to be very different. It is one thing to understand that these differences frequently occur and are within normal limits, and quite another thing to ignore them and to forget that they can be the source of real anxiety and of a variety of psychosomatic disorders in an adolescent. In dealing with adolescents therefore, it is necessary both to appreciate how much they dislike being different and how anxious they may become when they believe they are abnormal, and to have constantly in our own minds not average data and standards but instead a clear picture of the wide variations which are still well within normal limits. We adults, unwittingly perhaps, seem to prefer that others conform to the average. Too often there is the implication that thinness and fatness are, *ipso facto,* undesirable. Admittedly to weigh more or less than he does, or to be taller or shorter than he or she is, might in general be desirable for many adolescents, but are we always sure that for this particular adolescent, *with his constitution,* that what is nearer the average is necessarily *optimal for him?* We all know many deviates who, apparently having accepted themselves as they are, and not perenially (and futilely) seeking to be otherwise, lead happy, healthy, useful lives.

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Types of Injuries among College Athletes with Aids to Diagnosis

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ATHLETIC injuries are for the most part, similar to those that occur elsewhere; however, certain types are incurred much more often in athletics, and indeed, some of them are rarely found outside the realm of sports. It is the purpose of this paper to describe some of the injuries that take place among college athletes, in the hope that recognition of these lesions will be rendered easier to those who are occasionally called upon to treat them.

Contusions. Contusions, as might be expected, are the most common injury in contact sports. The average case presents no problem in diagnosis. Certain contusions, however, delivered with such force as to injure the deep tissues overlying a long bone and resulting in the clinical entity known as myositis ossificans traumatica, warrant further consideration because they entail much pain and disability. The typical history is that of a player receiving an unusually hard blow to the thigh or upper arm. This is followed by severe pain and swelling in the affected area. An x-ray taken immediately after the contusion shows no bone injury. As the symptoms do not subside as rapidly as expected, and induration develops at the site, another x-ray is taken in three to four weeks. This will reveal early light calcification near the bone in the area of the contusion. Serial x-ray examinations then will show a slow increase in size and density of the ossifying area for several months. Sometimes it may develop a bizarre shape with tonguelike projections. Finally, resorption will begin, as the rough edges become rounded off; and the mass will become

smaller and smaller until over a period of years, it may barely be perceptible on the x-ray film, or it may remain *in situ* diminished in size. The essentially benign nature of the process must be appreciated to forestall any alarm on the part of the patient and to avoid active treatment.

A hard contusion to the thigh, the so-called "charley horse," occurring especially in touch football, occasionally is complicated by considerable swelling and tenderness about the knee, coming on a day or two after the injury. In anticipation of this sequel of events, careful histories and examinations of the knees on the day of injury have revealed that, intrinsically, the knee has not been injured. The obvious explanation of this delayed swelling around the knee is that the serous exudate and extravasted blood has moved down the fascial planes of the thigh to the region of the knee where confinement has taken place at the distal end of the fascial compartment. Further corroboration that the knee has not been injured simultaneously with the contusion to the thigh is found in the fact that once the periarticular swelling subsides, no residual lesion or disability of this joint is found. Here again, an awareness of this sequence of events will prevent an unnecessary attempt at aspiration of the knee, and a favorable outcome can be advanced to the patient.

The contusion to the loin, severe enough to partially shear the underlying muscle just above the iliac crest and occurring so commonly in football after a hard block, is attended with so much pain in the area that there is a tendency to suspect a more serious injury. Sneezing, coughing, or laughing increases the pain. A helpful diagnostic aid is to have the patient flex the trunk to the opposite side, at which time there is unmistakable accentuation of pain. Considerable relief is obtained by immobilizing the side with tape.

Head Injuries. Fractures of the skull, considering the amount of exposure to trauma, are relatively rare among college athletes. An accidental hard kick on the helmetless head in football has been found to be the cause of this injury in the few instances in which it occurred at this university.

By contrast, cerebral concussions take place with greater frequency, especially in football. After a period of unconsciousness following a blow, the player develops a headache and demonstrates loss of memory of recent events. In addition, orientation as to time and some-

times, as to place, may be lost. The presence of a glazed look in the eyes, a vacant, expressionless face, and sometimes a silly, meaningless smile are helpful in the diagnosis. It might be added that all these signs may be present in a player who has received a few hard jolts to the head without being rendered unconscious. It is significant that more often than not examination of the reflexes and eye grounds reveals them to be within normal limits.

Wrist Injuries. Apart from the resulting disability which follows a sprain of the wrist, the importance of this injury lies in the fact that a fracture of the scaphoid bone may be unrecognized. It bears repetition that a fracture of the scaphoid may not be demonstrated by x-ray until about two weeks after the injury. Consequently, in the face of persistent symptoms of pain and tenderness in the wrist, the joint should be re-x-rayed at the end of that period, at which time a fracture line, if present, will be visible.

Acromio-Clavicular Sprains and Separations. The classical picture of rupture of the acromio-clavicular ligaments and of the supporting coraco-clavicular ligaments with elevation of the outer end of the clavicle, which characterizes acromio-clavicular separation of extreme degree, is relatively uncommon in college sports. However, minor sprains of this joint occur often. Strong force directed against the upper arm driving it downward, with the body in resistance, is capable of producing a sprain of this joint of varying degree. Accurate localization of tenderness directly over the joint is most helpful in the diagnosis in the minor sprains. X-rays show widening of the joint in the sprains of somewhat greater severity. It might be remarked that the pain and disability in the shoulder which attend this injury may be so striking that a fracture of the clavicle or a dislocation of the shoulder may be suspected. The history, careful examination, and localization of tenderness at the acromio-clavicular joint will reveal the true pathology.

Knee Injuries. Because of their frequency, complexity, and disability, injuries to this area are the most challenging to the physician who handles athletic injuries. It should be emphasized that a careful history and a knowledge of the mechanics that produce certain injuries to the knee are of decided importance in arriving at a diagnosis. For example, by far the majority of lesions of the meniscus occur when a rotatory twist of the knee is involved. Motion picture films of

football games and scrimmages have shown several instances of players sustaining complete give-outs even in the absence of physical contact, while "cutting," a football maneuver requiring a sharp twisting action at the knee. All these cases have been found to have tears of the meniscus at operation.

In evaluating an injury to the knee, the examiner should know whether the knee is locked or not. Frequently, it is not a simple matter to determine this fact, especially in those instances in which full extension is limited in the last few degrees. Also, a sprain of the medial collateral ligament is often attended with so much pain, that it is futile, if not cruel, to attempt to extend the knee from the slightly flexed position. Under such circumstances it is wise to defer this phase of the examination until the acute symptoms subside. The knee that is locked in extension, presents a characteristic rubbery resistance on attempted passive extension, at the point where further extension cannot be obtained. This finding and a comparison with the opposite, fully extended knee should satisfy the examiner that locking is present.

Space does not permit more than a cursory presentation of the various types of knee injuries encountered in college athletics, however, some of them deserve emphasis. Sprains of the medial collateral ligament occur frequently in practically all contact sports and in skiers, and tobogganners. The history of a blow to the outer side of the lower extremity in the region of the knee, the finding of tenderness and swelling over the upper attachment of this ligament at and below the adductor tubercle on the medial femoral condyle and the production of pain on forced abduction of the knee, all assist in rendering the diagnosis. If recovery is delayed after three weeks and especially if there is a definite painful limitation of extension or flexion, it is likely that calcification in the upper attachment of the medial collateral ligament (Pellegrini Stieda Disease) has taken place. The calcified area is usually palpable at this stage. Confirmation is obtained by x-ray.

Injuries of the meniscus are not as common as sprains of the knee. The former occurs in all sports in which violent twists of this joint take place. Apparently, traction of the firmly set foot is an important element in the production of this injury, as witness the fact that tears of the semilunar cartilages, in comparison with other contact sports,

are not common among basketball players. It is worthy of note that in all of the proved cases of primary injury of the meniscus, intra-articular fluid developed by the next day in athletes seen here. Consequently, in the absence of sanguineous fluid, a diagnosis of primary injury of the meniscus is looked upon with skepticism, although it is known to occur in occupations involving much squatting and kneeling in awkward positions. There are a number of athletes who suffer recurrent displacement of a torn meniscus, who for reasons of their own are content to live with their disability, at least until the time comes when the knee cannot be unlocked. In the meantime, with each instance of locking, they have learned to execute their own maneuver in getting the knee to straighten out, often in a matter of a few seconds; and without further ado they resume their sport as if the episode had never taken place. This is the so-called "trick knee."

Chondromalacia patellae, a lesion characterized by a localized area of pathological softening or fibrillation of the articular surface of the patella, merits detailed consideration, if for no other reason than that it occurs with a greater frequency than is generally known. Unfortunately, many orthopedic textbooks gloss over the subject and dismiss it with a few paragraphs. However, within recent years, proper recognition has been accorded to this lesion and several excellent articles have been written on the subject. In the series of knee cases coming to operation at this university, about one-third of them were found to have chondromalacia patellae as a single lesion, or in association with another intra-articular pathological entity based on injury.

The symptoms are initially vague and ill-defined. They consist of poorly localized pain around or below the patella in the region of the infra-patellar fat pad. Excessive walking or running, especially up or down inclines, increases the pain. Standing up, after having sat in one position for a few hours, also accentuates the discomfort. Objectively, soft tissue swelling and tenderness in the region of the patella may be found. At times, a mild synovial effusion is present. The most important finding is increased crepitation under the patella elicited best by partially resisted extension. This can be felt by the examining hand, and frequently it is clearly audible. To avoid error in diagnosis, the opposite knee must be similarly tested and compared. The diagnosis is frequently difficult to establish and several examinations may

be necessary. In over 90 per cent of the cases, x-rays of the patella, including tangential views are negative.

In summary, when a player has suffered an injury to the knee, and his response to treatment is slow; when his chief complaint is ill-defined pain in the region of the patella, especially in walking up or down stairs, long after most of the swelling has subsided, and ligamentous tenderness is gone; when an unusual amount of crepitus (compared to the other knee) is elicited under the kneecap on partially resisted extension, chondromalacia patellae is probably present.

Other lesions of the knee found with less frequency are: prepatellar bursitis, especially among wrestlers; osteochondritis dissecans of the medial condyle of the femur, tears of the anterior cruciate ligament with occasional avulsion of the tibial spine; joint mice; dislocation of the patella, and avulsion of the tibial tubercle. Occasionally, even in this age group, Osgood-Schlatters disease is activated by trauma. With such a formidable list of possible injuries, it becomes apparent that x-rays of this joint, in all but minor injuries, should be taken.

Injuries of the Ankle. These differ but little from those occurring outside the athletic sphere, and although a sprain of the ankle is one of the most common joint injuries among athletes, its characteristics are so familiar that detailed presentation is unncessary. The ligaments attaching to the lateral maleolus are most frequently injured. Attention to the location of the tenderness and swelling will help to distinguish a sprain of the ankle from that of an acute foot sprain, with which it is frequently confused. It is a good policy to x-ray ankles with sprains of moderate to severe extent to exclude the possibility of an associated fracture.

March Fractures. These occur most commonly in the second and third metatarsals, especially in track men. Within the last year two march fractures of the lower fibula have been found among this group of athletes. The usual history is that of a persistent pain in the area of involvement in the absence of a specific traumatic injury. After a few weeks, a bone-hard swelling may be felt at the site of pain. X-rays, which showed no pathology earlier, now reveal characteristic callus formation.

Tendinitis and Peritendinitis. Unless one searches for these lesions they may be easily overlooked. Football players often develop an

achilles tendinitis and occasionally the long extensor of the big toe is involved. New shoes, ill-fitting or not "broken in" are at least partially responsible. Crew men suffer an involvement of the flexors of the forearm. Crepitation in the involved tendons is elicited with the proper active or passive motions. The involved tendon is placed on the stretch, and from this position slight alternating flexion and extension of the neighboring joint is performed. Crepitation can be felt in the tendon by the examining finger. In the case of crew men, who develop tendinitis from feathering the oar, the crepitus can be elicited best by having the athlete close the fist and then have him alternately pronate and supinate the forearm.

Shin Splints. This lesion is particularly common among track and cross-country men. It is characterized by pain and tenderness over the superficial surface of the upper tibia and in the fibres of the tibialis anterior muscle which originate on the lateral aspect of the upper tibial shaft. Slight swelling and crepitus may be present in the area of pain. Shin splints occur at the beginning of the season, especially when practice is done on hard ground or roadways. The lesion probably results from a strain on the attachments of the tibialis anterior muscle to the tibia with secondary irritation of the periosteum.

Strains of Thigh Muscles. Football linemen, hurdlers, and high jumpers are frequently troubled with the so-called "groin strain" which consists of a strain of the adductor longus muscle on the inner and upper part of the thigh. The player with this lesion usually presents himself to the physician seeking reassurance that a hernia in the inguinal region has not occurred. Localization of tenderness directly over the injured muscle, together with an absence of the usual clinical signs of hernia establish the nature of the injury. Later, swelling and, sometimes, ecchymosis develop in the area. Strains of the quadriceps and hamstring muscles are the particular bane of track men, especially sprinters. The history of a sudden cramplike pain in the thigh while running, with resulting incapacitation, serve warning that a strain has taken place in the area of pain. Tenderness can be localized directly over the muscle involved. Complete rupture of a muscle band with an intervening gap has not been found in our group of athletes. On the other hand, a few freshmen, who sustained this lesion in pre-college track, were unable to compete any longer because of this disability. History, revealed in each instance that they

continued competitive running without adequate rest to the part, and after a week or two (in the period of softening), complete rupture of the muscle band took place.

Separation of Chondro-chondral Junctions of Ribs. This lesion, painful and slow healing, occurs among strong, hard-charging backfield men upon being tackled hard in the lower chest. Wrestlers have sustained this injury by a violent twist of the trunk in an effort to escape a hold. Acute persistent pain in the region of the lower anterior ribs of either side supervenes immediately after the injury. The sharp pain and tenderness is intensified in the area by increased forward bending or extending the trunk, and to a lesser extent by deep breathing. Frequently, the separated cartilaginous rib can be felt sliding over the neighboring rib as the above maneuvers are executed.

Fractures of Lumbar Transverse Processes. Localized pain and tenderness in the para-vertebral muscles of one side of the lumbar area following a blow or kick in the area are signs suggestive of fracture of the transverse processes of the lumbar vertebrae. Football players and soccer goal tenders are prone to sustain this injury. When x-ray reveals that the upper lumbar vertebrae are involved in this fracture, urinalysis should be done, inasmuch as injury to the kidney may also be present.

Nerve Root Stretch. Another striking example of an injury of somewhat unusual occurrence is that of the line backer of a football team, who, after making a hard tackle either head-on or to the side of the neck, is incapacitated by agonizing, but short-lived, burning pain radiating from the neck down the arm to the fingers. Usually only one arm is involved. In most cases the pain subsides in a few minutes and the athlete is able to resume play. Neurological investigation and x-rays of the cervical spine have not shown any predisposing cause for the frequent occurrence of this brachial plexus syndrome in certain players. Occasionally, it makes the player "gun-shy" and interferes with his efficiency and determination. One regular line backer had considerable trouble throughout a season with this syndrome and yet, when he returned to play the following year he had no recurrence. The reason for this favorable change has not been apparent.

Superficial Breast Abscesses Secondary to Trauma. An occasional athlete engaged in contact sports presents himself to the physician

complaining of a small tender lump in the breast. He may or may not recall having been struck in the area. Physical examination reveals a small, firm, circumscribed, slightly tender subcutaneous mass in or near the areola of the nipple, which resembles a small tumor rather than an abscess. Pressure applied to the mass may cause a thin seropurulent discharge to appear at the nipple indicating intra-ductal involvement. Incision and drainage will reveal a slowly developing abscess.

Blisters, Abrasions, and Sequelae. Blisters of the hands and feet often become secondarily infected giving rise to regional lymphangitis and lymphadinitis. Frequently, an athlete unaware of the pathogenesis of this lesion, offers as his presenting symptom, headache, fever, or pain in the groin or axilla. Under such conditions, the physician should examine the extremities carefully for the telltale local cellulitis with red streaking of the superficial lymph channels extending proximally up the limb. The regional lymph nodes are enlarged and tender.

Abrasions may also become similarly infected. In addition the lesions of impetigo contagiosa may become implanted on abrasions of the face especially among wrestlers.

Bursitis. Pre-patellar and olecranon bursitis, easily diagnosed by the superficial fluctuant swelling directly over the bony structures which they overlie are notably common among wrestlers. Occasionally an olecranon bursitis is complicated by the development of a considerable amount of edema and well-marginated erythema of the skin of the forearm. Stellate ganglion block with novocaine produced a rapid permanent remission in one case after antibiotics and physiotherapeutic adjuncts had exhibited no effect.

Baseball Finger. This lesion results when a baseball player, usually a catcher, is struck on the tip of the finger by a batted or hard-thrown ball. After the injury he is unable to fully extend the terminal phalanx actively, indicating that the extensor tendon which anchors to its base has been at least partially torn. The prognosis for recovery is more favorable if x-ray reveals that a small bony fragment has been avulsed from the dorsum of the bone.

Visceral Injuries. A few contusions of the kidney manifested by hematuria have occurred among the athletes each year. One player had a lacerated kidney. Persistent pain and tenderness in the upper

lumbar region, following a blow in this area, are indications for urinalysis to be done. Rupture of the spleen, while occurring rarely, is fraught with such grave consequences, that all symptoms related to the left upper quadrant of the abdomen should receive the closest attention. The possibility of delayed massive bleeding from this organ must be kept uppermost in mind.

SUMMARY

The subject of athletic injuries as pertains to young college athletes is discussed with a view toward rendering better recognition of these injuries to those who are called upon to treat occasional cases. Some aids to diagnosis are offered.

The Nutritionist in the Student Medical Clinic

CHARLOTTE M. YOUNG, PH.D., CORNELL UNIVERSITY

SINCE October 1942, the Student Medical Clinic at Cornell University has included in its staff a part-time nutritionist. Her function has been fourfold: nutrition-counseling for students in the Clinic; operating a special diet table and serving as consultant to the Infirmary on special feeding problems; conducting research; and, on request, giving nutritional assistance or instruction to campus groups. It is the purpose of this presentation to describe particularly the establishment and operation of the counseling service and special diet table. No attempt will be made in this paper to give statistics of results achieved.

The nutritionist was appointed to the staff of the Department of Clinical and Preventive Medicine in the Fall of 1942, shortly after the establishment of the School of Nutrition at the University. She was to provide a nutrition program for students under the combined sponsorship of the Department of Clinical and Preventive Medicine, the School of Nutrition, and the New York State College of Home Economics. Such a co-operative sponsorship is ideal and leads to an all-campus scope of usefulness and opportunities which would not be so readily possible under any one unit alone. Key to success in the work has been the exceedingly generous medical co-operation given and the acceptance of the nutritionist as an integral part of the clinical staff, with all the privileges and opportunities of such a staff member. This acceptance has included invitations to weekly staff conferences, the Medical Journal Club, the local hospital medical section weekly staff meetings—activities which have been a real educational opportunity for the nutritionist so that she, in turn, could make a better contribution.

NUTRITION COUNSELING SERVICE

The first portion of the program to be established was a nutrition-counseling service for students as an integral part of the Student Medical Clinic. All students in need of nutrition-counseling are referred to the nutritionist by the medical staff, with whom all work is co-ordinated. As a member of the Clinic staff, the nutritionist keeps regular office hours in the Clinic two afternoons and one morning each week. Here student patients are seen by appointment. Initial appointments are scheduled at half-hour intervals. Pertinent medical data are studied, and a careful diet history is taken. Advice is then given on the basis of the doctor's recommendations, the nutritionist's insight, and the eating habits of the student. Mimeographed sheets are not used, but individual plans suitable to the immediate situation are drawn up during the conference. If the problem is one which necessitates further help and encouragement of the student, the nutritionist makes appointments for subsequent visits at weekly, bi-weekly, or other suitable intervals.

Patients referred to the nutritionist indicate the variety of assistance she may render: some cases require aid in diagnosis by a thorough dietary history or a diet evaluation; for others, nutritional education can be of help; and many patients need diet therapy. Especially is this true for those whose problems are related to weight gain or loss, allergies, colitis, diabetes, and peptic ulcers. The nutritionist receives many requests for help in planning low-cost, easily prepared meals and for assistance in the investigation and correction of faulty food habits. Nutrition education given individually in the Clinic in response to a recognized need is accepted more readily and is more apt to lead to constructive action than that dispensed on a group basis in compulsory hygiene.

The Medical Clinic is the logical place for nutrition-counseling and a suitably trained nutritionist is the logical person to do the counseling. Nutrition-counseling in the health service identifies nutrition in its proper role as an integral part of the much larger picture of total health. The necessary related data are found in the Clinic. Furthermore, the nutritionist can strengthen the staff by interpreting recommendations for dietary changes and the improvement of nutritional status and by giving the help students may re-

quire to carry through their treatment program. Nutrition instruction to be functional requires a workable knowledge on the part of the counselor, a certain amount of insight, plus a great deal of interest, time, and patience. Counseling with college students is a slow, time-consuming individual task; however, there is compensation in knowing that students have the means and opportunity to carry out given instructions so well that it is possible to achieve better results with them than can be hoped for in other groups of patients.

Contacts were originally made with students as they came to the medical staff for other purposes. Soon the physical education staff, the offices of the Deans of Men and Women, the instructing staff, home physicians, and former patients were referring students to the Clinic for help with nutrition problems. All cases, except those strictly budgetary in nature or having education implications, were routed through doctors and had the benefit of the attention of both physician and nutritionist. Formerly when the Medical Clinic held entrance physical examinations for all entering students, the nutritionist participated. This practice greatly expanded the nutritionist's contact with students and was, in fact, preventive as well as therapeutic in nature. Since the student was faced with his nutritional problem upon his entrance to college, he had the opportunity to do something about it early in his college career and thus could make better and happier adjustments and avoid the frantic, tragic attempts often made at the end of the college course in order to be considered for professional placement. Appointments made at the time of examination by face-to-face contact were usually kept. Since physical examinations are now made previous to college entrance, students having nutritional problems are discovered when their medical history and physical examination reports are reviewed by a physician. Appointments are made by mail. This method is in general less satisfactory.

No description of the nutrition-counseling service would be complete without some special mention of the weight problems encountered in college students, of which there are many, as in any other population group in this country today. To work successfully with these problems the nutritionist must be thoroughly oriented to the fact that food has many nonmetabolic or non-nutritional uses. We recognize that for different individuals food serves a variety of needs: the need for pleasure, the need to relieve boredom, to gain social ac-

ceptance, and to relieve tensions resulting from anxieties. We recognize, too, that to some persons food symbolizes love and affection which they need and cannot find. Consequently, in addition to obtaining a good diet history, much of the nutritionist's attention is focused on finding out what food means to the individual being treated and why he tends to eat too much or too little. The diet history is of value in helping the patient to know best how to plan to make himself more comfortable while on a restricted regime. There is always the hunger element to be dealt with in weight reduction, even after the appetite angle has been satisfactorily approached. The nutritionist respects the student as an individual and she offers him help which is his to accept or not as he pleases. She tries, within the limitations of her training and understanding, to help the patient gain insight as to why he eats excessively and to find better and less damaging means of satisfying his needs. She tries to help him see how he can eventually manage his own problems and to carry him along with understanding support until he can carry his problems alone. If his need is for affection, her genuine and sympathetic interest helps; if his need is for pleasure, she helps him to get the most possible pleasure from his eating while reducing.

Weight problems seen by the nutritionist in the Clinic fall into three groups. In a certain percentage of these young people, the difficulty is primarily just poor eating habits; in some cases it is the first time the student has actually made any of his own decisions with regard to food. A little discreet counseling and plain education in nutritional facts in terms of the student's present situation soon take care of these cases. A much larger percentage of the cases have emotional bases. A considerable number of these are not of such magnitude but what the nutritionist can be of real help by aiding in developing insight, by emotional support, and by coping with the actual hunger phase. There are some cases where problems are so deep-seated that without competent psychiatric help the nutritionist can be of little service. It is in the early recognition of these that the nutritionist needs help in order to bring maximum treatment to bear.

Each year for the past nine years, some 100 to 150 new patients as well as from 350 to 500 old patients have been seen by the nutritionist. In addition to those given assistance for overweight and underweight problems, a large percentage of the patients seen require

diet prescriptions for diabetes, allergies, peptic ulcers, colitis, and other medical conditions amenable to special diets. The interest, both personal and professional, expressed by the medical staff in progress made by students receiving help from the nutritionist has been gratifying. But equally important is the realization that students have been helped to make a more satisfactory adjustment to life and also the appreciation expressed by both students and their parents for the assistance given.

SPECIAL DIET TABLE

The Special Diet Table was designed to satisfy many needs. It affords a means of providing special diet service which ordinarily cannot be handled satisfactorily through the usual campus food services; it offers tangible assurance to parents that students with difficult dietary problems will receive attention; it offers an excellent opportunity to accustom the student to a new diet and help him develop good food habits; it offers diagnostic assistance not otherwise available; it provides welcome security to the student as a group member, which in itself can be of real therapeutic value. In addition, the impact of suddenly finding oneself "different" in respect to something so fundamental as eating is less great when one finds fellow students with the same problems carrying on quite normally in all other respects. The presence and constant contact of the nutritionist and dietitian with her interest in each patient has great therapeutic value.

Besides its therapeutic value for the student patients, the Special Diet Table is a real educational tool. It is a source of educational contact for certain selected professional students at the graduate level; it is also a source of excellent case material for teaching graduate students in counseling and in nutrition education of the public. Such material is always used with the strictest observance of ethics and without violation of the rights of the patient. Selected research subjects whom the medical staff wish to follow or on whom the nutritionist may wish to make special studies in co-operation with the medical staff are fed at the Special Diet Table.

Operation of the Special Diet Table is a co-operative affair. The School of Nutrition advances the operating funds; because the In-

firmary is located off campus, the College of Home Economics contributes housing and much of the working equipment and facilities. The Department of Clinical and Preventive Medicine co-operates by rendering medical advice and support, referring patients for diet prescriptions and passing upon those persons who are admitted to the Special Diet Table research group. Patients are referred to the nutritionist by Clinic physicians for determination of the feasibility of diagnostic procedures or therapeutic regimes under the student's customary eating circumstances. If the prospect of success in such a situation is not good, upon recommendation from the doctor and nutritionist, a request for release of the student from Residential Halls to the Special Diet Table is made. Recommendations from home physicians are first cleared through Student Medical Clinic physicians. Most urgent problems, of course, receive first attention.

The number of students who can be served at the Diet Table is limited by the capacity of the table to approximately fifteen; thus acceptance becomes a privilege. This "privilege" feature creates a cooperative response and helps make possible some of the excellent results obtained. A splendid spirit is evident among the group; a feeling of comradeship and enjoyment is obvious. Results have been gratifying not only because of the physical benefits attained, but also because of the personal satisfaction, pride, and expressed appreciation of the students and their families.

Over the nine-year period the table has serviced from 25 to 55 students a year, with an average of 30 students annually. The first few years of operation were on a self-supporting basis. Since then food and labor costs have risen greatly. Now a student is charged whatever he usually pays for food, unless he is able to pay the expense created by the additional service, in which case he is charged full cost. No student has ever been denied the service for lack of funds. Subsidization of the Diet Table by Mr. Frank Gannett has taken care of deficits created by deserving students unable to pay their share of costs. The staff of the Diet Table consists of a part-time dietitian, a full-time cook, and student helpers, many of whom have needed the services supplied by the Table.

RESEARCH

The nutrition service has also carried on research activities which have grown out of the nutrition-counseling and Special Diet Table services. Prerequisite to effective counseling and the choice of students to be given the privilege of joining the Special Diet Table group is a thorough knowledge of existing food facilities and opportunities available to students, as well as knowledge and understanding of student eating habits. This information the nutritionist can acquire from several sources; namely, by means of noting routinely the menus of university-supervised eating establishments; by carefully observing existing facilities; and by studying the food habits of students. The desire for more information on the last point, for use in counseling and classroom instruction, has led to dietary studies. A fairly accurate picture of actual campus food and eating habits, about which information is usually vague and subject to much rumor, is of immeasurable value in helping counselors and the medical staff to know how much credence may be given to student notions concerning food. Such a survey points out remediable difficulties and often reassures the school administration. All too often college dietary studies have been limited to students in home economics classes who are unconsciously biased by student-teacher relationships or knowledge of what one is "supposed to eat." The nutritionist on the staff of the Medical Clinic is in a unique position to obtain accurate and unbiased information. A study covering all eating situations, undertaken quite independently of classroom work, and combined with careful correlation with official menus, will give a fairly accurate picture of the true campus food situation and student eating habits. Dietary studies of this type for both men and women students have been completed at Cornell.

OTHER ACTIVITIES

The ultimate objective of an effective nutrition program for students should be to reach all students, regardless of college affiliation. The number who can be reached by personal counseling, of necessity, is limited; also personal counseling probably reaches only those with the more obvious problems. To extend a knowledge of the ele-

ments of good personal and family nutrition to a larger number of students, an introductory course in nutrition was established in the College of Home Economics but limited to non-home-economics students. The nutritionist originally taught this course, using illustrations gathered from the Clinic, Diet Table, and dietary studies as teaching tools. More recently the pressure of other duties has made it necessary for the course to be offered by another staff member, the nutritionist now teaching only a graduate course in clinical nutrition.

Besides these more formal activities, the nutritionist has been drawn, in response to requests, into many informal extracurricular activities which reach still more students and, in addition, other university personnel. These include participation in a variety of courses offered in orientation, in physical education, in meal-planning classes for sorority chaperones, and other student projects, such as aid to fraternities in menu planning.

These then represent the fourfold activities of the nutritionist in the Student Medical Clinic. There are other functions which could be developed if the nutritionist's time permitted, but enough of a program has developed to give her a feeling of rich reward for the time spent in these activities.

Acute Traumatic Hematoma of the External Ear

H. A. BRITTON, M.D., CORNELL UNIVERSITY

INJURY to the external ear is common among boxers and wrestlers. It is an injury rare among football players and those participating in other contact sports. Experience with this condition over the last thirty years at the Cornell Clinic and Infirmary has been largely with wrestlers of Cornell University, Ithaca College, and Ithaca High School. Long ago it was determined that unless a matman's injured ear was treated promptly and the treatment maintained, a disfiguring cauliflower ear usually followed. It was found, too, that an athlete cannot stay away from practice or competition for long because of this apparently minor injury and still develop as a wrestler. It is the purpose here to present a method of treatment, borrowed in part from the University of Illinois and further developed at Cornell, which has enabled men with this injury to continue practice after a minimum loss of time and which has prevented them from developing cauliflower ears. After treating well over a thousand cases by the method here presented, the author has found it unusual for a wrestler, so treated, to close his collegiate career with a marked ear deformity.

PATHOLOGY

The essential pathology consists of a hematoma either in the perichondrium of the pinna or superficial to it, anteriorly or posteriorly. This condition develops almost immediately after the trauma, al-

though some cases have been encountered which have manifested a diffuse swelling first and localized a few days later. Left alone, the hematoma organizes and contracting scar tissue later distorts the normal contour of the pinna. Repeated injuries to the pinna leave it a thickened, misshapen member.

SYMPTOMS AND SIGNS

After the injury, the symptoms vary from a minor degree of discomfort to moderately severe pain. Usually local swelling with or without discoloration is noticeable at the site of injury. Occasionally, as mentioned, a diffuse swelling may be found, localization taking place after a day or two. Palpation of the hematoma reveals a characteristic spongy softness.

TREATMENT

Prophylactically, headgear may be used in an attempt to prevent the injury. In some colleges, wrestlers use headgear at all times while wrestling, but there is some division of opinion as to the effectiveness of this protective device in preventing injury to the ear. Some physicians have expressed the opinion that the incidence of injury is little reduced by this measure.

Aspiration of the hematoma has been practiced by most physicians. However, the treatment subsequent to aspiration has been found to be of major importance. At first, treatment consisted of pressure bandages applied after one aspiration. Later, gauze dressings impregnated with melted white wax or water glass (sodium silicate) were used. Each of these agents had disadvantages; the former required the right temperature before application and the latter was uncomfortable because of the tiny sharp spicules of water glass. Plaster of Paris dressings have been advocated by some, but they were also found unsatisfactory in this Clinic.

Several years ago the collodion-gauze method, which was being used at the University of Illinois, was tried at Cornell. The results were so gratifying that this feature was included in the total treatment which has been evolving under the direction of the writer and which incorporates all therapy needed to prevent cauliflower ears.

The method used at Cornell University, which became locally known as the "Britton Method of Treatment," is painstaking, requiring five to fifteen minutes in the average case. Aspiration is carried out with a hypodermic needle attached to a small syringe. The amount of fluid drawn off varies from 0.1 cc. to 6 cc., the latter being the most fluid we have ever found at one time. The color of the fluid may be amber or sanguineous. Usually, considerable relief is felt by the patient immediately following aspiration. Occasionally, several needlings are required to evacuate a hematoma. A dry tap rarely occurs, and if it does, a successful aspiration may follow one to two days later. After aspiration, a single layer of gauze (from an ordinary bandage roll) is applied over the site of the hematoma. With an applicator dipped in collodion, this layer of gauze is meticulously shaped to fit the contour of the ear. Three or four layers of gauze are applied over the site of injury in similar fashion. After the collodion hardens, a snug cast results, preventing, by its pressure, refilling of the hematoma. Following this application, the young athlete is ready to wrestle again. Reaspiration of the hematoma and re-dressing with collodion gauze may be necessary for three or four days, but, while it is time-consuming the results justify the procedure.

As an adjunct, in some ears where the hematoma is relatively inaccessible to pressure, i.e., in the fossa, a loop of number 18 copper wire is molded much like sugar tongs, a wire loop being placed both behind and in front of the hematoma, joined by extensions of the wire around the rim of the pinna. The wire with its loops are covered with adhesive tape before final application. The pressure in this case is exerted by the covered wire loop applied to the site of injury on each side of the ear. To avoid necrosis, caution must be taken not to have too much pressure. The patient is instructed to loosen the wire at the first sign of discomfort. An athlete does not wrestle while wearing this type of pressure dressing.

SUMMARY

A method of treating an acute traumatic hematoma of the external ear is presented. This method, designed for prevention of deformity, has been successfully employed in the treatment of over one thousand cases at Cornell University.

Letters to The Editor

To the Editor:

This letter is to advise you that I sincerely enjoyed the first issue of *Student Medicine*. Since the subject to which your magazine is devoted has had no previous consolidated outlet for its related publications your efforts should be amply rewarding and are enthusiastically welcomed by those of us in the field of college student health.

I sincerely trust that you will continue to publish student health and related articles and herewith request that you keep me on your mailing list.

CHARLES B. KEPPLER, M.D.
Health Officer, University of the South
Sewanee, Tennessee

To the Editor:

Thank you very much for Volume I, Number I, of *Student Medicine*.

It is a fine beginning. There will be difficult times ahead in maintaining the standard you have set for yourself in the first issue.

It is stimulating to think of your effort as the start of a publication offering a channel of recognition for work done in the field of student medicine. The American College Health Association should offer you all the aid and support within its power.

IRVIN W. SANDER, M.D.
Director, Student Health Service
Wayne University
Detroit, Michigan

To the Editor:

Congratulations on the issue of *Student Medicine*. The format is pleasing. The articles are well written and timely. It is indeed good to

have such a magazine and we welcome it to the list of publications pertaining to health.

J. D. Farris, M.D.
University Physician
University of Kentucky
Lexington, Kentucky

To the Editor:

For several months I have intended to write you congratulating you on the start of *Student Medicine* and giving you my best wishes for a strong and healthy life for this young publication. I am grateful to you for the complimentary copy and hope that I may have an opportunity to subscribe to it. Such a publication has been needed for a long time and I am happy that it has been brought to fruit.

George H. Houck, M.D.
Director, Health Service
Stanford University
Stanford, California

To the Editor::

I was much interested in the report of the "Cold Clinic". By law, nurses do not diagnose and prescribe. I would assume, however, that in this "Cold Clinic", the nurse functions as does the Public Health Nurse. She is under the general supervision of the doctor, but exercises her judgment in daily contacts with the patient and her family. She reports to the doctor when necessary.

It is difficult to know where nursing leaves off and medicine begins. It was not too long ago that doctors refused to let nurses take blood pressures. That was medicine. Giving intravenous medications was also medicine. Now we leave it to the Corpsmen on the Battle Field and save thousands of lives. This responsibility in the "Cold Clinic" is one of those imponderables which goes through a good deal of controversy during a transitional stage. The proof of its value lies in the effect, don't you think?

Perhaps the fact is, that there are levels of medical practice, even as there are levels of nursing practice. If we are to supply the health services needed at a cost the public can bear, we probably need to do a good deal more analysis of what the person needs to know to do a job. If well-qualified nurses handle the ordinary cold episodes, perhaps that is where

responsibility should be placed, reserving the physicians' talents and long preparation for more complex kinds of situations.

Very sincerely yours,
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These letters are a representative sample of those received. We wish to thank all who wrote to us for the compliments and best wishes so generously expressed in their letters. It has been encouraging and stimulating to hear from so many. We hope that in the future all of you will feel free to offer criticism and to take issue with us on controversial points. It is only as you present your views and relate your experiences that this department can grow in interest to its readers.